

West Virginia Hazardous Weather Awareness Week

February 28-March 6, 2010



HAZARDOUS WEATHER AWARENESS WEEK



NATIONAL WEATHER SERVICE

* CHARLESTON * PITTSBURGH *

* STERLING * BLACKSBURG *



FEBRUARY 28-MARCH 6, 2010

Governor Joe Manchin has proclaimed February 28-March 6, 2010 as Hazardous Weather Awareness week in West Virginia. The National Weather Service, in conjunction with the West Virginia Division of Homeland Security and Emergency Management, will issue information about severe weather in West Virginia.

The goal of **Hazardous Weather Awareness Week** is to heighten everyone's knowledge of the dangers of flooding, severe thunderstorms and tornadoes, and to provide information to help everyone get prepared for severe weather before it occurs.

This document contains information about severe weather terms, safety rules, and some tornado events that affected West Virginia. Daily statements will be issued on newswires and NOAA All Hazards Radio during the week. Your local National Weather Service office will be available throughout Awareness Week for interviews or questions.

SPRING 2010

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OTHER DATES TO NOTE

* Flood Safety Awareness Week

March 15-19, 2010

www.weather.gov/floodsafety

* National Safe Boating Week

May 22-28, 2010

www.safeboatingcouncil.org

* Lightning Safety Week

June 20-26, 2010

www.lightningsafety.noaa.gov

Awareness Week

Daily Focus

Sunday February 28: Kick-off: Weather Terminology and definitions

Monday, March 1: Lightning: EVERY thunderstorm contains lightning, so every one of them is dangerous

Tuesday, March 2: Tornadoes: Do you know the safest place to seek shelter at home, school and work?

Wednesday, March 3: Severe Thunderstorms: Some can be as powerful and damaging as a tornado!

Thursday, March 4: Flash Floods: West Virginia's deadliest weather threat

Friday, March 5: Situational Awareness: Increasing yours will help keep you safe during severe weather

Saturday, March 6: Information Exchange: Find out how you can help the NWS by sending us your weather reports

Storm Summaries are available on NWS Charleston and NWS Pittsburgh homepages in West Virginia. Call our toll free number **1-877-633-6772** and see your reports. Read more about this tool on **page 6**!

Flood and Flash Flood Information

CHECK OUT THE ADVANCED HYDROLOGIC PREDICTION SERVICE (AHPS)

AHPS is a great tool to check out the latest in river flood information. Information on flood stage, flood impacts and any current flood warnings or statements is available for each station on the map. If you live or work near a river or stream, this page will be of great help to you! www.weather.gov/ahps

FLOOD AND FLASH FLOOD SAFETY TIPS

FLOOD FACTS

- Monitor NOAA All Hazards Radio or your favorite news source for vital weather information.
- If flooding occurs, get to higher ground, away from areas subject to flooding.
- Avoid areas already flooded and do not attempt to cross flowing streams.
- Do not drive around barriers that warn you the road is flooded. **Some cities and counties will issue a fine to motorists who ignore barriers!**
- Never drive through flooded roadways as road beds may be washed out under flood waters.
- If your vehicle is suddenly caught in rising water, leave it immediately and seek higher ground.
- Do not camp or park your vehicle along streams and washes, if there is a threat of flooding. Be especially cautious at night when it is harder to recognize flood dangers.



According to FEMA:

The average annual U.S. flood losses from 1996-2005 was more than \$2.4 billion.

Hurricanes, winter storms and snow melt are common (but often overlooked) causes of flooding.

On June 19, 2008, eighteen counties in West Virginia received a FEMA Disaster Declaration for severe storms, tornadoes, flooding, mudslides and landslides.

CRITICAL NWS FLOOD PRODUCTS

Hazardous Weather Outlook: This product alerts the public when flood producing rainfall is expected in 36 to 72 hours or if any severe weather threat is expected. During the months of February and March, this product also contains information on the potential for flooding from the spring snow melt.

Flood Watch: A flood or flash flood watch is issued when conditions are favorable for flooding or flash flooding to develop.

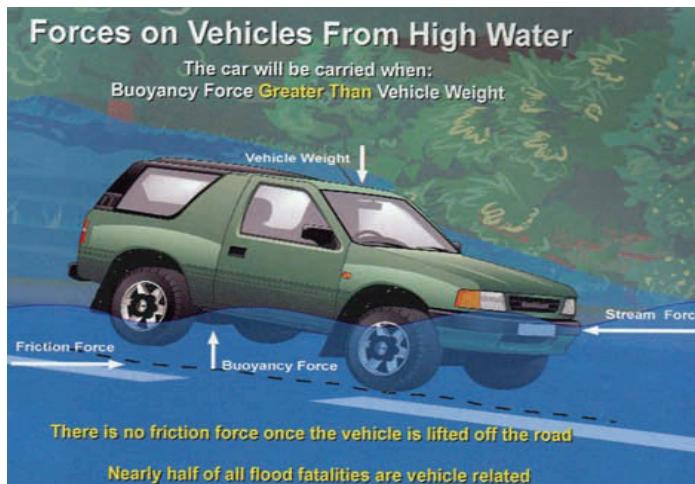
Flash Flood Warning: These warnings are issued when rapid flooding is imminent. Flash floods quickly develop within six hours of a heavy rainfall event.

Flood Warning: These warnings are issued when rivers, streams, or creeks are flooding, or there is inundation in an area that threatens life and property. River flooding mostly occurs with longer periods of rain which result in slower rises in flood waters and a prolonged flood event.

In West Virginia, over 60% of flood fatalities, and the **#1 cause of weather related fatalities, is due to people driving through flooded roadways and low water crossings.**

Why do vehicles float? They float for the same reason a 97,000 ton aircraft carrier floats, buoyancy!

Where does this idea that "my heavy vehicle will keep me safe" come from? It comes from the false trust in the weight of the vehicle you are driving.



Many believe their 3,000 pound or more vehicle will remain in contact with the road surface, that it is too heavy to float. Think about that for a moment. Aircraft carriers weighing 97,000 tons float.

Vehicles, including ships, float because of buoyancy. In fact, most cars can be swept away in 18-24 inches of moving water. Trucks and SUVs do not fare much better with an additional 6-12 inches of clearance.



U.S.S. Eisenhower

Are You Ready for a Flood or a Flash Flood?

Here's what you can do to prepare for such emergencies

Know what to expect

- ✓ Know your area's flood risk—if unsure, call your local Red Cross chapter, emergency management office, or planning and zoning department.
- ✓ If it has been raining hard for several hours, or steadily raining for several days, be alert to the possibility of a flood.
- ✓ Listen to local radio or TV stations for flood information.

Reduce potential flood damage by—

- ✓ Raising your furnace, water heater, and electric panel if they are in areas of your home that may be flooded.
- ✓ Consult with a professional for further information if this and other damage reduction measures can be taken.

Floods can take several hours to days to develop—

- ✓ A flood WATCH means a flood is possible in your area.
- ✓ A flood WARNING means flooding is already occurring or will occur soon in your area.

Flash floods can take only a few minutes to a few hours to develop—

- ✓ A flash flood WATCH means flash flooding is possible in your area.
- ✓ A flash flood WARNING means a flash flood is occurring or will occur very soon.

Prepare a Family Disaster Plan

- ✓ Check to see if you have insurance that covers flooding. If not, find out how to get flood insurance.
- ✓ Keep insurance policies, documents, and other valuables in a safe-deposit box.

Assemble a Disaster Supplies Kit containing—

- ✓ First aid kit and essential medications.
- ✓ Canned food and can opener.
- ✓ At least three gallons of water per person.
- ✓ Protective clothing, rainwear, and bedding or sleeping bags.
- ✓ Battery-powered radio, flashlight, and extra batteries.
- ✓ Special items for infant, elderly, or disabled family members.
- ✓ Written instructions for how to turn off electricity, gas, and water if authorities advise you to do so. (Remember, you'll need a professional to turn natural gas service back on.)

Identify where you could go if told to evacuate. Choose several places . . . a friend's home in another town, a motel, or a shelter.

When a flood WATCH is issued—

- ✓ Move your furniture and valuables to higher floors of your home.
- ✓ Fill your car's gas tank, in case an evacuation notice is issued.

When a flood WARNING is issued—

- ✓ Listen to local radio and TV stations for information and advice. If told to evacuate, do so as soon as possible.

When a flash flood WATCH is issued—

- ✓ Be alert to signs of flash flooding and be ready to evacuate on a moment's notice.

When a flash flood WARNING is issued—

- ✓ Or if you think it has already started, evacuate immediately. You may have only seconds to escape. Act quickly!
- ✓ Move to higher ground away from rivers, streams, creeks, and storm drains. Do not drive around barricades . . . they are there for your safety.
- ✓ If your car stalls in rapidly rising waters, abandon it immediately and climb to higher ground.

Your local contact is:

SNOWMELT FLOODING

In terms of area, property damage and deaths, eight of the most significant floods in the 20th century were snowmelt-related. Several factors contribute to snowmelt flooding:

- ***High soil moisture content:*** Soil that is saturated with water in late fall may not have time to drain and dry out before it freezes, resulting in deep ground frost and frozen soil.
- ***Ground frost or frozen soil:*** Deep frozen soil or ground frost prevents snowmelt from soaking into the soil.
- ***Heavy winter snow:*** More snow means that more water will be released when snow melts. When snow melts very rapidly, the risk for flooding increases.
- ***Rain:*** Heavy rain during the snowmelt period can increase the risk for flooding. Rainfall can warm snowpack, causing it to melt more quickly than it otherwise would.
- ***Ice jams:*** When river ice breaks up and flows downstream, it may pile up at narrow passes or near bridges and dams. Ice jams act like dams and can result in river flooding, especially when water is running high due to snowmelt.

Piles of snow in West Virginia will be melting over the next couple of weeks. There are simple steps you can take to protect your home from damage related to snowmelt flooding:

- Shovel snow away from doors and your home foundation. Remove snow from window wells.
- With this much snow melting, water may still seep into some basements. Protect your belongings by clearing basement floors and moving shelves and furniture away from basement walls.
- Look for moisture coming through ceilings. This may indicate that ice dams are blocking gutters.
- Don't climb on your roof or high areas of your home to clear ice and snow away or clean gutters. Stay safe by asking a professional contractor to do the job.

TORNADOES

-  A tornado is a violently rotating column of air extending from a thunderstorm to the ground.
-  The average forward speed is 30 mph but may vary from nearly stationary to 70 mph.
-  Tornadoes can occur at any time of the year.

TORNADO SAFETY

IN HOMES OR SMALL BUILDINGS:

Go to the basement (if available) or to an interior room on the lowest floor, such as a closet or bathroom. Wrap yourself in overcoats or blankets to protect yourself from flying debris.

IN SCHOOLS, HOSPITALS, FACTORIES, OR SHOPPING CENTERS:

Go to interior rooms and halls on the lowest floor. Stay away from glass enclosed places or areas with wide-span roofs such as auditoriums and warehouses. Crouch down and cover your head.



IN HIGH-RISE BUILDINGS:

Go to interior small rooms or halls. Stay away from exterior walls or glassy areas.

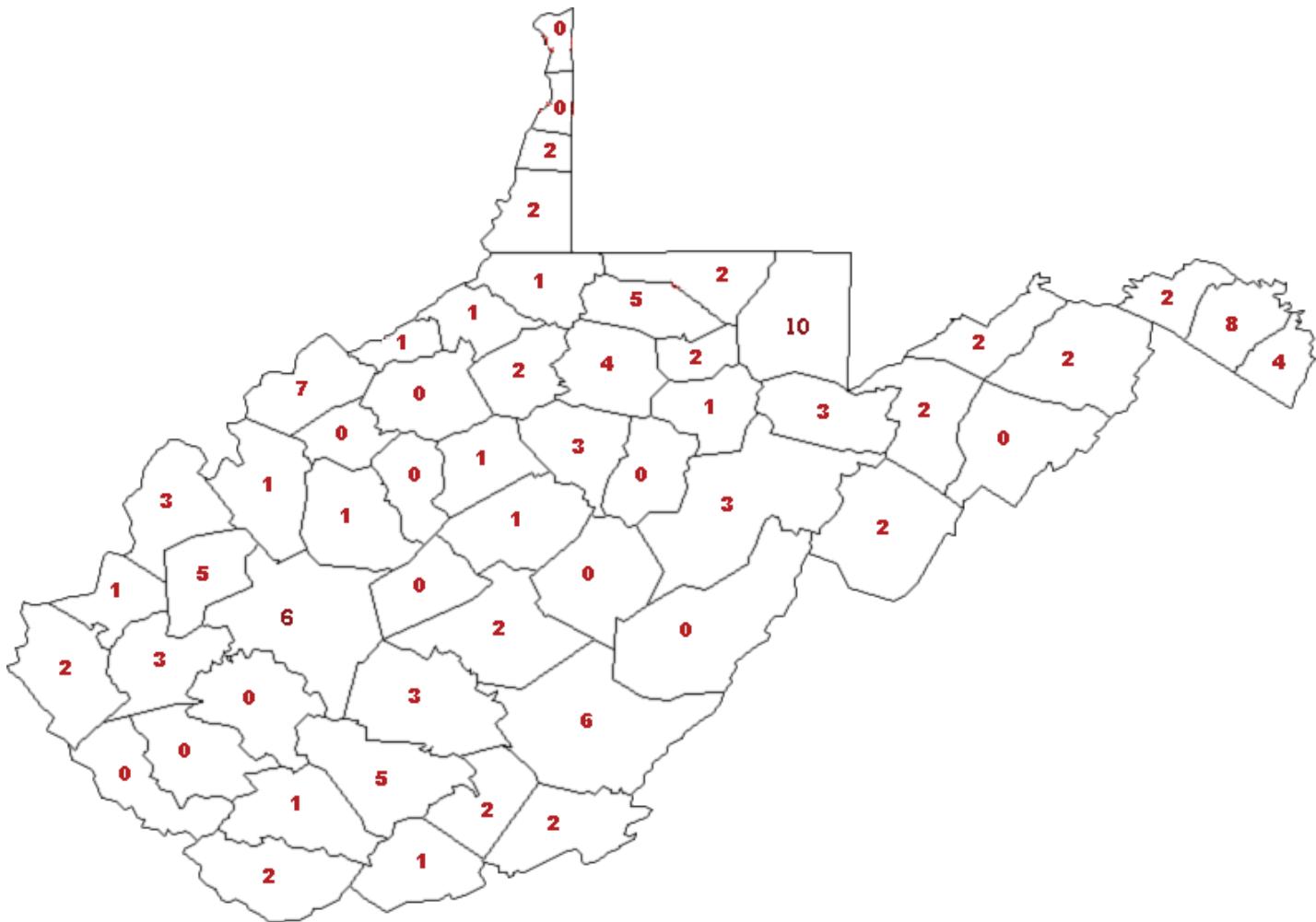
IN CARS OR MOBILE HOMES:

ABANDON THEM IMMEDIATELY!! Most deaths occur in cars and mobile homes. If you are in either of those locations, leave them and go to a substantial structure or designated tornado shelter.

IF NO SUITABLE STRUCTURE IS NEARBY:

Lie flat in the nearest ditch or depression and use your hands to cover your head.

The map below shows the number of tornadoes reported in each county from 1950 through October 2009.



West Virginia Tornado Facts

Strongest: The Shinnston tornado that ravaged a path of destruction from Shinnston to Cheat Mountain, then on to Maryland and ending in Pennsylvania in the Allegheny Mountains, on June 23, 1944 was the only twister to produce F4 damage in West Virginia.

Longest path: April 4, 1974 Tornado – 65 miles – covered McDowell, Wyoming, Raleigh, Fayette, Summers and Greenbrier Counties.

Deadliest: The Shinnston tornado on June 23, 1944 - killed 103 people in West Virginia.

Widest: 300 yards - June 2, 1988 in Preston County near Glade Farms and on May, 21 1967 in Randolph County.

Costliest: June 2, 1988 in Preston County near Glade Farms - \$ 7 million dollars in damage and possibly the 1944 Shinnston tornado, no damage estimates were available.

HAZARDOUS
WEATHER
AWARENESS
WEEK



Lightning Safety!

LIGHTING SAFETY WEEK JUNE 20-26, 2010

www.lightningsafety.noaa.gov



All thunderstorms produce lightning and are dangerous. Lightning kills more people each year than tornadoes.

Lightning often strikes as far as 10 miles away from any rainfall. Many deaths from lightning occur ahead of the storm because people try and wait to the last minute before seeking shelter. **You are in danger from lightning if you can hear thunder.** If you can hear thunder, lightning is close enough that it could strike your location at any moment. Get inside!!

Lightning injuries can lead to permanent disabilities or death. On average, 10% of strike victims die; 70% of survivors suffer serious long term effects.

Blue Skies and Lightning. Lightning can travel sideways for up to 10 miles. Even when the sky looks blue and clear, be cautious. If you hear thunder, take cover. At least 10% of lightning occurs without visible clouds overhead in the sky.

- ✓ There is NO safe place to be outside in a thunderstorm.
- ✓ If you can't get into a fully enclosed building or vehicle, do not seek shelter under trees or partially open structures. Sitting or crouching on the ground is NOT safe and should be your last resort.
- ✓ Avoid leaning against vehicles. Get off bicycles and motorcycles. Avoid metal! Don't hold on to metal items such golf clubs, fishing rods, tennis rackets or tools.
- ✓ Get out of the water. It's a great conductor of electricity. Don't stand in puddles of water, even if wearing rubber boots.
- ✓ Move away from a group of people. Stay several yards away from other people. Don't share a bleacher bench or huddle in a group.

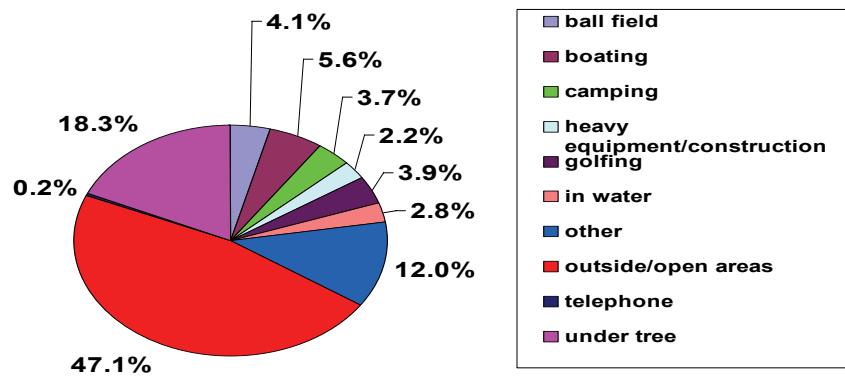


25 million cloud-to-ground lightning strikes occur in the United States each year



Lightning can heat its path five times hotter than the surface of the sun

1996-2007 Lightning Fatalities



SEVERE WEATHER TERMS AND DEFINITIONS

Warning - a particular weather hazard is either imminent or has been reported. A warning indicates the need to **take immediate action** to protect life and property. The type of hazard is reflected in the type of warning (e.g., tornado warning, blizzard warning).

Watch - a particular hazard is possible, or when conditions support its occurrence. A watch is a recommendation for **planning, preparation**, and increased **awareness** (i.e., to be alert for changing weather, listen for further information, and think about what to do if the danger materializes).

Tornado - A violently rotating column of air in contact with the ground and extending from the base of a thunderstorm.

Severe Thunderstorm - A thunderstorm that produces tornadoes, hail 0.75 inches or more in diameter, or winds of 50 knots (58 mph) or more.

Straight-line Winds - Generally, any wind that is not associated with rotation, used mainly to differentiate them from tornadic winds.

Flood - The condition that occurs when water overflows the natural or artificial confines of a stream or other body of water, or accumulates by drainage over low-lying areas.

Flash Flood - A flood that rises and falls quite rapidly, usually as the result of intense rainfall over a relatively small area. Usually it occurs within 6 hours of a rain event.

Slight Risk (of severe thunderstorms) - Implies well-organized severe thunderstorms are expected, but in small numbers and/or low coverage.

Moderate Risk (of severe thunderstorms) - Indicates a potential for a greater concentration of severe thunderstorms than the slight risk, and in most situations, greater magnitude of the severe weather.

High Risk (of severe thunderstorms) - Suggests a major severe weather outbreak is expected, with a high concentration of severe weather reports and an enhanced likelihood of extreme severe (i.e., violent tornadoes or very damaging convective wind events occurring across a large area).

Supercell - A thunderstorm with a persistent rotating updraft. Supercells are rare, but are responsible for a remarkably high percentage of severe weather events - especially tornadoes, extremely large hail and damaging straight-line winds.

Squall Line - A solid or nearly solid line or band of active thunderstorms.

Downburst - A strong downdraft resulting in an outward burst of damaging winds on or near the ground. Downburst winds can produce damage similar to a strong tornado. Although usually associated with thunderstorms, downbursts can occur with showers too weak to produce thunder.

Funnel Cloud - A condensation funnel extending from the base of a towering cumulus or cumulonimbus cloud, associated with a rotating column of air that is *not* in contact with the ground (and hence different from a tornado). A condensation funnel is a tornado, *not* a funnel cloud, if either a) it is in contact with the ground or b) a debris cloud or dust whirl is visible beneath it.

Cold-air Funnel - A funnel cloud that can develop from a small shower or thunderstorm when the air aloft is unusually cold (hence the name). On rare occasions, small, relatively weak tornadoes can occur. These weak tornadoes last only a few minutes and are generally much less violent than other types of tornadoes.

Winds of Change...

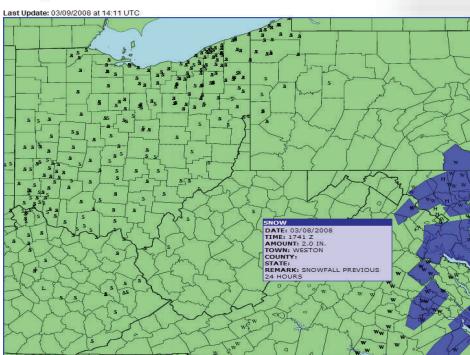
Real-Time Local Storms Summary is available, NOW!

Real-Time Local Storms Summary

Report Severe Weather by calling: 1-877-633-6772

Reports can also be made via the internet at: e-spotter

This page displays storm reports received from the previous 72 hours along with warnings issued for this and surrounding offices. Storm reports are preliminary, and have not been issued for all events. If you are interested in becoming an official spotter for the NWS, contact your local NWS office. More mouse over map to view report and warning information.



The Real-Time Local Storms Summary is available on the Charleston and the Pittsburgh websites. Now, instead of just reading about what happened in your area, you can see a picture of what of What Happened and be a part of it as well! If you have any severe weather to report you can call our toll free number **1- 877- 633 - 6772**. Reports can also be made via the internet at: espotter.weather.gov and your report will show up here!!.

Heat Wave

How can I be prepared and stay safe?

- Wear light clothes, sunglasses and a hat to protect yourself from the sun.
- Drink plenty of water at all times, even if you do not feel thirsty.
- Do not overexert yourself.
- Eat light meals.
- Stay out of the sun when possible.

Relative Humidity (%)

°F	40	45	50	55	60	65	70	75	80	85	90	95	100	With Prolonged Exposure and/or Physical Activity
110	136													Extreme Danger
108	130	137												Heat stroke or sun stroke highly likely
106	124	130	137											Danger
104	119	124	131	137										Sunstroke, muscle cramps and/or heat exhaustion likely
102	114	119	124	130	137									Extreme Caution
100	109	114	118	124	129	136								Sunstroke, muscle cramps and/or heat exhaustion likely
98	105	109	113	117	123	126	134							Caution
96	101	104	108	112	116	121	126	132						Fatigue possible
94	97	100	103	106	110	114	119	124	129	135				
92	94	96	99	101	105	108	112	116	121	126	131			
90	91	93	95	97	100	103	106	109	113	117	122	127	132	
88	88	89	91	93	95	98	100	103	106	110	113	117	121	
86	85	87	88	89	91	93	95	97	100	102	105	108	112	
84	83	84	85	86	88	89	90	92	94	96	98	100	103	
82	81	82	83	84	84	85	86	88	89	90	91	93	95	
80	80	80	81	81	82	82	83	84	84	85	86	86	87	

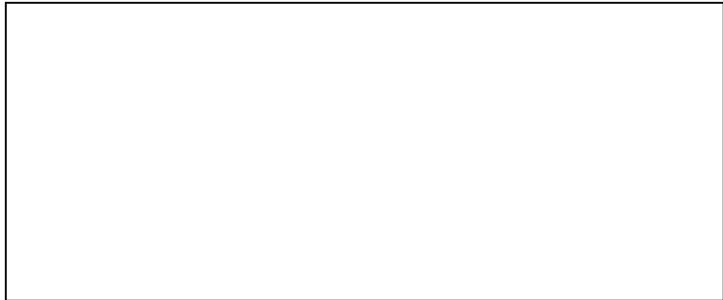
Did you know?

In 2007, according to NWS statistics, **105 fatalities** were attributed to heat!

There were **1886 injuries**.



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400 Parkway Road
Charleston, WV
<http://weather.gov/CharlestonWV>



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